# Rhodora

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3. Names borrowed from other languages than Latin or Greek and more or less Latinized: BERBERIS, TECOMA, CABOMBA, YUCCA, MAYACA.

4. Plants named for persons, either by the addition to the person's name (often modified) of *-a*, *-ia*, or by some such suffixed word as *-anthus*.

5. Artificial compounds, invented by the authors, generally from Greek component parts, because of the ease of compounding in Greek, *e. g.*, SERICOCARPUS, CAULOPHYLLUM. These are often carelessly and incorrectly formed. In this sin Linnaeus and Rafinesque are among the chief offenders. Of about nineteen names ascribed by the sixth edition of the Manual to Rafinesque, three are formed from names of persons, one is unexplained, and fifteen are of his own concoction. Of these fifteen, ten are incorrectly formed!

6. Names derived from those of other genera, including anagrams: TRILISA (*Liatris*), VERBESINA (*Verbena*), VALERIANELLA, CROTONOPSIS.

All these names are by common convention put into a form more or less closely approximating to Latin, and are accompanied by adjectives in agreement with them according to Latin rules of gender. From the unity afforded by this thin veneer of Latinity any uniform system of accentuation must take its start. We should therefore enquire upon what principle Latin words are accented. For those whose recollection of Latin accent is less vivid than it once was I will summarize its principal rules.

1. The penultimate syllable of a word if long is accented; if not, the antepenult receives the accent.

2. A syllable is long if it contains a long vowel or a diphthong, or a short vowel followed by *x*, *z*, or two consonants (except a mute or *f* followed by a liquid). Examples:

a) vowel long: CALOPÒGON.

b) diphthong: SUAÈDA.

c) before *x*: HYPÓXIS.

d) before *z*: I have noted no instance of this in the Manual.

e) before two consonants: LITTORÉLLA, SYNÁNDRA, EPIPÁCTIS. Note that the combinations *ch*, *ph*, *th* (Greek $\chi$, $\phi$, $\theta$) each count as a single consonant.

f) before a mute or *f* + a liquid = BRACHYÉLYTRUM.

As in all these cases except a) the length of the syllables is at

once apparent, the difficulties narrow themselves to those words in whose penults vowels whose quantity is not obvious precede single consonants. The quantity of the penultimate vowels of Latin and Greek words is generally known, either from derivation or from use of the words in poetry. Thus Homer, Iliad xxi. 350, corrects the Manual pronunciation of PTELEA and ITEA and proves that of MYRICA. Words, however, which do not occur in Greek or Latin poetry but merely in prose are sometimes uncertain (eg. CARDAMINE, ELATINE). Uncertainty as to the etymologies of some words (such as VERONICA, ARNICA, ABUTILON) is a great obstacle to the determination of the proper accent. The quantities also of the penultimate vowels of many native words are uncertain and await the attention of persons conversant with the languages from which these names are drawn. In such cases, until positive evidence is forthcoming, a deviation from current usage is undesirable, and indeed we may count ourselves fortunate when usage does not split upon this very point.

In the case of names formed from proper names by the addition of *-a*, it has been a convenient custom arbitrarily to consider penultimate *a*, *o*, or *u* as long and *e*, *i*, or *y* as short: BERTERÒA; MUNRÒA not *Múnṛoa* as in the Manual; LÍSTERA; LÍPPIA; etc.

These preliminary remarks are intended to apply to the so-called 'English method' of pronouncing Latin, so firmly established in this country for scientific names that nothing short of a revolution in pronunciation could supplant it. But while this system differs in the sounds given to various vowels and consonants from other more correct systems its theory of accentuation is in agreement with other methods.

I shall now speak of certain generic names incorrectly accented in Gray's Manual, grouping them in two lists: 1) of names in which the mistaken quantity of the vowel has led to placing the accent on the wrong syllable; 2) of cases in which the accent is placed on the correct syllable but in which the length of the vowel of that syllable is wrongly indicated. For the accented syllables I shall employ the notation used in the Manual, the grave accent ` indicating a long vowel and the acute ´ a short vowel.

1. CAÙCALIS not *Caucàlis*

ERIGENÌA not *Erigènia*. From ἠριγένεια, a Homeric epithet of Dawn.

HYPERÌCUM not *Hypéricum.* ὑπέρεικον (cf. ἐρεικη, *erìca*).

MICROSTÝLIS not *Micróstylis.* } στῦλίς
NEMASTÝLIS not *Nemástylis.* }

NOTHOSCÓRDUM not *Nothóscordum.* The penult is long before two consonants.

POLYGÓNATUM not *Polygonàtum.* πολυγόνᾰτον.

STENOSÍPHON not *Stenósiphon.*

2. In this list I shall indicate only the *correct* vowel quantities of words which the Manual indicates incorrectly.

ÁBIES
ÁCER
AEGOPÓDUM. So also
CHENOPÓDIUM
LYCOPÓDIUM
THELYPÓDIUM
POLYPÓDIUM
AGRÒSTIS. So also
ERAGRÒSTIS
CALAMAGRÒSTIS
AMBRÓSIA
ARCEUTHÓBIUM
ARISTOLÓCHIA
BÍDENS
BRÓMUS
BUMÉLIA
CASTÁNEA
CHAMAELÍRIUM
CLÁDIUM
CLÈMATIS
CRÓTON
CYPRIPÉDIUM
DIÓDIA
EPILÓBIUM
EUPHRÁSIA
GÁLAX
GÁLIUM
GERÁNIUM
GLYCÉRIA
GNAPHÁLIUM
GRATÍOLA
HELÉNIUM
HELIOTRÓPIUM
HYOSCÝAMUS
IMPÁTIENS
ÌTEA
LÁRIX
LÌLIUM
LÓLIUM
MÌMULUS
MITRÉOLA
MODÍOLA
ONOSMÓDIUM
OPÙNTIA
PHACÉLIA
PHASÉOLUS
PHLÉUM
PHLÓMIS
PHYSOSTÉGIA
PÍCEA
PÓA
PRÌMULA
PTÉLEA
PTÉRIS
PÝRUS (cf. *Pyrola*)
RHÈXIA

RHÙS
RÓSA
RÚMEX
SÁLIX
SAPÍNDUS
SENÉCIO
SÍUM
SPARGÁNIUM
STÁCHYS
THÝMUS
TRÒXIMON
UNÍOLA
VACCÌNIUM
VÍOLA
XÝRIS

I will not here take the space to prove all of these pronunciations but will give samples by notes on a few of the more surprising changes.

CLÈMATIS. Greek κληματίς.

EPILÓBIUM. Greek ἐπί + λόβιον.

LÌLIUM. Cf. Vergil, Aen. vi. 708–709: *candida circum lilia funduntur.*

LÓLIUM. Verg. Georg. i. 154: *infelix lolium et steriles dominantur avenae.*

PRÌMULA. Diminutive of *prìma.*

VACCÌNIUM. Verg. Ecl. ii. 18:

*alta ligustra cadunt, vaccinia nigra leguntur.*

The other cases may be substantiated in these same ways, partly by derivation, partly by poetical use.

In offering this comparatively short list of names I am aware that many others are in as much need of study. Such a study should be undertaken in connection with a review of the derivations of generic names, a field in which there are many doubtful points, of which some will probably never be known. And if to anyone I may seem to be suggesting too violent changes, I should like to say that by adopting them we should be not merely adopting an accentuation which is theoretically correct, but should also be bringing ourselves into uniformity with European botanists to whom *Hyperìcum*, *Polygónatum*, etc. are the recognized and familiar pronunciations.

ANDOVER, MASSACHUSETTS.

# RECENTLY RECOGNIZED SPECIES OF CRATAEGUS IN EASTERN CANADA AND NEW ENGLAND,—VI.

C. S. SARGENT.

TOMENTOSAE.

Stamens 20; anthers rose-color or pink.

**Crataegus Helenae**, n. sp. Leaves broadly ovate to oval, acute or short-pointed and acuminate at the apex, concave-cuneate or rounded at the entire base, finely and often doubly serrate above, with straight glandular teeth, and slightly divided above the middle into 3 or 4 pairs of short acuminate lobes, when they unfold tinged with red, glabrous with the exception of a few hairs along the upper side of the midribs and conspicuously reticulate-venulose, with midribs and veins deeply impressed on their upper side, when the flowers open late in May or at the beginning of June, thin but firm in texture, dark green, smooth and lustrous above and pale or glaucous below, and at maturity coriaceous, dark green on the upper and pale on the lower surface, 5–6 cm. long, 4–5 cm. wide, with stout yellow midribs often rose-colored on the lower side toward the base, and slender yellow primary veins extending obliquely to the points of the lobes; petioles stout, wing-margined at the apex, usually rose-colored in the autumn, 1.2–1.5 cm. in length; stipules linear, acuminate, bright red, mostly deciduous before the flowers open; leaves on vigorous shoots broadly oval to rhombic, short-pointed at the apex, rounded or cuneate at the base, coarsely serrate, often 6 cm. long and 5 cm. wide, with short stout broadly winged dark red petioles. Flowers about 1.5–1.7 cm. in diameter, on elongated slender glabrous pedicels, in usually 12–18-flowered compact corymbs, with oblong-obovate to linear bracts and bractlets glandular, with minute dark red glands, bright scarlet like the large and conspicuous inner bud-scales and mostly deciduous before the flowers open; calyx-tube narrowly obconic, glabrous, dark red in the bud, the lobes slender, acuminate, glandular, with minute stipitate glands, glabrous on the outer and puberulous on the inner surface, reflexed after anthesis; stamens 20, long-exserted; anthers large, dark rose color; styles 2 or 3, mostly 2. Fruit ripening early in September and falling during the month, on slender erect reddish pedicels, in few-fruited clusters, short-oblong, often ovate, full and rounded at the ends, scarlet, very lustrous, translucent, 8–10 mm. long and nearly as broad; calyx little enlarged, with a narrow shallow cavity, and spreading and reflexed lobes villose-pubescent on the upper side and mostly persistent on the ripe fruit; flesh thin, orange color and succulent; nutlets usually 2, broad

and rounded at the base, narrowed and rounded at the apex, ridged on the back, with a low slightly grooved ridge irregularly penetrated on their inner faces by usually large deep cavities, 6–7 mm. long and about 5 mm. wide.

A tree 3–4 m. high, with a tall stem 5–8 m. in diameter covered with dark scaly bark, short thick erect rigid branches forming an open irregular head, and stout slightly zigzag branchlets marked by small oblong pale lenticels, dark orange-green and glabrous when they first appear, becoming light red or purplish and very lustrous in their first season and ultimately dull gray-brown, and armed with stout usually straight purplish shining spines generally pointed toward the base of the branch and 5–6 cm. long.

Rocky hillsides, Wolf Pen Farm, Southborough, Worcester County; Massachusetts, *C. S. Sargent*, May, September and October, 1904.

This handsome plant, which is one of the most distinct of the species of this group and one of the most beautiful of the New England Thorns, is named for Miss Helen Sears of Southborough.

**Crataegus pisifera**, n. sp. Leaves rhombic to oblong-obovate on vigorous shoots, acute or acuminate, gradually narrowed to the cuneate entire base, finely doubly serrate, above with straight glandular teeth and slightly divided above the middle into numerous short acute lobes, nearly fully grown when the flowers open during the last week of May and then thin, yellow-green, lustrous, smooth and glabrous above with the exception of a slight pubescence along the midribs, and pale and clothed below along the base of the primary veins with short persistent hairs, and at maturity coriaceous, conspicuously reticulate-venulose, dark yellow-green and lustrous on the upper and pale on the lower surface, 5–7 cm. long and 4–5 cm. wide, with stout yellow midribs deeply impressed on the upper side and 5 or 6 pairs of slender primary veins extending obliquely to the points of the lobes; petioles stout, wing-margined to the middle, puberulous on the upper side while young, becoming glabrous, sometimes slightly tinged with rose color, 1–1.5 cm. in length. Flowers 1.3–1.5 cm. in diameter, on slender elongated slightly villose pedicels, in wide compound many-flowered corymbs, with oblong-obovate to linear acute glandular bracts and bractlets fading brown and often persistent until the flowers open; calyx-tube narrowly obconic, the lobes wide, acuminate, incisely glandular-serrate, glabrous on the outer, pubescent on the inner surface, reflexed after anthesis; stamens 20; anthers minute, light pink; styles 2 or 3. Fruit ripening at the end of September and remaining on the branches until the following spring, on slender reddish erect or spreading pedicels, in many-fruited clusters, hard, subglobose, crimson, lustrous, marked by occasional pale dots, 6–8 mm. in diameter; calyx prominent, with a

deep narrow cavity and wide coarsely serrate lobes light red below the middle and pubescent on the upper side, persistent on the ripe fruit; flesh thin, dry and mealy; nutlets 2 or 3, full and rounded at the ends, rounded and ridged on the back, with a broad slightly grooved ridge, irregularly penetrated on the inner faces by broad shallow cavities, 5–6 cm. long and about 4 cm. wide.

A shrub 2–3 m. high, with stout slightly zigzag branchlets marked by large pale lenticels, light orange-yellow and glabrous when they first appear, becoming bright chestnut-brown and very lustrous during their first season and reddish brown the following year, and armed with stout slightly curved purplish shining spines 3.5–4.5 cm. long.

Cornwall, Vermont, *E. Brainerd* (No. 15 d type), May and September 1901, *W. W. Eggleston* (Nos. 2234 and 2323), May and July, 1901.

Well distinguished from the other species of this group by its minute pale pink anthers and small hard long-persistent fruit.

(*To be continued.*)

## SYMPHORICARPOS RACEMOSUS AND ITS VARIETIES IN EASTERN AMERICA.

M. L. FERNALD.

THERE are in eastern America three noteworthy variations of the Snowberry, *Symphoricarpos racemosus*, all with the corolla characteristically bearded within and with the stamens and styles included, and seeming referable to one broadly distributed but variable species.

The plant commonly known as *Symphoricarpos racemosus* is an upright shrub with glabrous leaves and often numerous flowers in terminal or axillary spiciform racemes. This plant is very generally cultivated in Europe as well as in America; and as a native shrub it is found more or less across the continent from Quebec to Washington, and very locally south in the mountains to Virginia.

A second plant often smaller than the glabrous-leaved shrub, though sometimes quite as large, has the leaves pilose or tomentulose beneath, and usually few flowers. This shrub with pubescent leaves is locally abundant, especially on calcareous rocky banks, from east-

ern Quebec and Rupert Land throughout the forested region to Alaska, and south to western New England, northern Pennsylvania, Michigan, Montana, Idaho and California.

The third shrub has the small leaves pilose beneath, but, unlike those of the other two, decidedly whitened below, the leaves of the two preceding shrubs being merely pale green but not white beneath. This shrub with the leaves white beneath is known from Lake Superior to Lake Winnipeg, and from Alberta to Oregon and Colorado.

In the summer of 1904 the first-mentioned shrub, with glabrous leaves, was found in abundance on a wooded bank at Tadousac in eastern Quebec; while on the opposite bank of the River St. Lawrence, at Bic, the second shrub, with the green leaves pubescent beneath, was abundant. The flowers and other features showed no clear differences, but in the pubescent leaves the Bic shrub was strikingly unlike the smooth-leaved shrub of Tadousac. An attempt to identify the two shrubs has brought to light a singular confusion which has long prevailed in our interpretation of the plants which have passed as *Symphoricarpos racemosus*.

The species was described by Michaux from Lake Mistassini, but in his original description there is nothing to indicate whether or not the leaves are pubescent or glabrous. A pencil-note, however, "leaves very tomentulose beneath," which I made in 1903 while examining the herbarium of Michaux at the Muséum d'Histoire Naturelle in Paris, indicates that the Michaux type from Lake Mistassini was the pubescent leaved shrub which we know to be generally distributed in western Quebec and western New England, and which has usually passed as *Symphoricarpos racemosus*, var. *pauciflorus*.

The widespread application of the name *Symphoricarpos racemosus* to the glabrous-leaved shrub seems to be due to an erroneous identification of Loddiges in 1818. In the text accompanying the first illustration of this glabrous-leaved shrub (as *Symphoria racemosa*), Loddiges said: "This plant is quite new to this country [England]; we received it, for the first time, last spring, from our friend Mr. Robert Carr, who informs us that it is a native of the Western country of North America, and was found by Lewis and Clark beyond the rocky mountains, in August 1805: we consider it, however, to be the Symphoria racemosa of Michaux."[1] Loddiges' identification was accepted by Sims, in 1821, in the Botanical Magazine, where a col-

[1] Lodd., Bot. Cab. iii. no. 230 (1818).

ored illustration of the plant was presented;[1] and under the name *Symphoricarpos racemosus* the shrub soon became common in cultivation, and no one seems to have noticed that it was unlike the Canadian type preserved in the Michaux herbarium.

Robbins's *Symphoricarpos racemosus*, var. *pauciflorus*, as originally published in the fifth edition of Gray's Manual, in 1867, was distinguished by having reduced inflorescences and it came from "Rocky woods of L. Superior, *Dr. Robbins*, and northwestward. Alleghanies of Pennsylvania, *J. R. Lowrie*, *Mr. Bocking*." No mention, however, was made of the remarkable whitening of the under leaf-surfaces which is conspicuous in all Robbins's Lake Superior material and that from "northwestward" (*i. e.*, Lake Winnipeg Valley, *Bourgeau*). The leaves of the Pennsylvania material, from Blair and Huntington Counties, originally associated with the Lake Superior plant, are merely pale green but not white beneath and are like those of the pubescent-leaved plant of western New England and Quebec which is now identified with the Michaux type of *S. racemosus*.

The attempt to separate as a variety or a species the plants with reduced inflorescences is apparently artificial. At Bic, where the pubescent-leaved plant which has generally passed in the East as *Symphoricarpos racemosus*, var. *pauciflorus* (but which is really the true *S. racemosus*) abounds, shrubs on the same slope have the flowers solitary or in twos, or often several in an interrupted raceme. Again, the glabrous-leaved plant which has erroneously passed as true *S. racemosus* may often quite lack the elongate terminal raceme which is supposed to characterize it. Without characters other than those found in the presence or absence of pubescence on the leaves, the three plants occurring in eastern America are best treated as varieties of a broadly distributed species.

SYMPHORICARPOS RACEMOSUS, Michx. Shrub 0.2 to 1 m. high: leaves from elliptic-oblong to orbicular, *pilose beneath*.— Fl. Bor.-Am. i. 107 (1803). Var. *pauciflorus*, Robbins in Gray, Man. ed. 5, 203 (1867), as to Pennsylvania plant; and most authors of New England, New York, and Pennsylvania. *S. pauciflorus*, Britton, Mem. Torr. Cl. v. 305 (1894), in part.— Rupert Land to Alaska, south to Berkshire County, Massachusetts, Huntingdon and Blair Counties, Pennsylvania, Michigan, Montana, Idaho, and California.— Much of the

[1] Sims, Bot. Mag. xlviii. t. 2211 (1821).

northwestern material which is passing as *S. mollis*, Nutt., seems inseparable from *S. racemosa*. W.D.

Var. laevigatus. Often taller: *leaves glabrous beneath.* — *Symphoria racemosa*, Loddiges, Bot. Cab. iii. no. 230 (1818); Sims, Bot. Mag. xlviii. t. 2211 (1821). *Symphoricarpos racemosus*, most authors, not Michaux. — Saguenay County, Quebec to Washington, locally south in the mountains to Virginia. Freely cultivated and commonly escaped to roadsides, etc.

Var. PAUCIFLORUS, Robbins. Dwarf shrub: leaves more or less pubescent and *strongly whitened beneath.*— Robbins in Gray, Man. ed. 5, 203 (1867), as to Lake Superior and Winnipeg ("northwestward") plant. *S. pauciflorus*, Britton, Mem. Torr. Cl. v. 305 (1894), in part.— Lake Superior to Lake Winnipeg, and locally in the mountains from Alberta to Oregon and Colorado.

GRAY HERBARIUM.

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LOTUS TENUIS AS A WAIF IN RHODE ISLAND.— On July 3, 1905, in a wet meadow near the railroad track as it enters Newport, Rhode Island, I found a small colony of *Lotus tenuis*, Waldst. & Kit. The meadow is quite on the outskirts of the town, with no gardens near at hand from which the plant could have escaped. The species is a native of Europe and was in full bloom. There were two patches, one growing in the meadow and the other by a cartroad, some twenty-five feet away. On July 25th I found a single plant of the same kind in the next meadow, across the road and to the northeast of the others, where possibly a seed had been carried by the prevailing southwest summer wind. By August 3rd no more flowers were to be found, but the plants were covered with pods. Specimens of this interesting plant have been deposited in the herbaria of Mr. Walter Deane, Mrs. George S. Parker, and the writer. It may be worth while to record also the finding of *Lycium vulgare*, Dunal, the Matri-

mony Vine, in Newtown, Rhode Island, growing along a wall in a dry pasture far from any apparent cultivation.— Reginald Heber Howe, Jr., Concord, Massachusetts.

## PHYCOLOGICAL NOTES OF THE LATE ISAAC HOLDEN,— I.

Edited by F. S. Collins.

In the notice of Mr. Isaac Holden, Rhodora, Vol. V, p. 219, mention was made of the careful record it was his custom to make of his collecting, with a view of publication as soon as a sufficiently complete list of the flora of the region near Bridgeport, Connecticut, could be made. At the time of his death nothing had been done towards publication, but now by the courtesy of Mr. Holden's family, his note books have been entrusted to the writer, who hopes to be able to make their contents available to the readers of Rhodora. Mr. Holden's numbered notes begin in 1890; the first 11 numbers referring to forms of the genus *Batrachospermum*, to which he was then giving special attention; each number covering specimens of a particular type or station, but of various dates; with No. 12 begins the system, afterwards followed, of using a number only for one date and for one form, but including an indefinite number of specimens of any one date and place, supposed to be identical. No. 12, the first under this plan, is *Cladophora Rudolphiana* Ag., May 18, 1890; the last is No. 1553, *Laminaria Agardhii* Kjellman, May 10, 1903, about six weeks before Mr. Holden's death. While absolute dependence can be placed in all of these records, no deduction should be drawn from the absence or the infrequence of record of any species; the record is one of specimens collected, not of plants observed; common forms, in regard to which no question was likely to occur, were passed by without record; for a fuller list of the marine algae of the Bridgeport region see Lists of New England Plants, V, Marine Algae, Rhodora, Vol. II, p. 41; the Connecticut column rests almost entirely on Mr. Holden's collections, and includes everything found by him up to the publication of the list; as regards fresh water algae, however, the present paper includes practically all Mr. Holden's observations.

For several years before 1890 Mr. Holden had collected marine algae, but his specimens were not numbered; some species, such as the delicate form of Rhodomela, *R. Rochei* Harvey, found abundantly then at Seaside Park, have not been seen, or are very rare, recently; the changes incident to the rapid growth of a city are felt by seaweeds as well as in other directions; some of the stations here given are no longer available; at Cook's Point, for instance, the original stations of *Stictyosiphon subsimplex* Holden, and *Hydrocoleum Holdenii* Tilden, have been destroyed by the building of great factories and the cutting of channels and ditches through the marshes; but marshes of similar character are abundant in the vicinity, and other stations will undoubtedly be found.

Mr. Holden distributed specimens freely to his correspondents, and in most cases these specimens bore the numbers from his note book; changes in names have been made in the past few years in some cases, and in the present list the latest accepted form is used. In the main it agrees with the list in RHODORA, Vol. II, p. 41, and where it differs, the name used in the latter is given as a synonym. Where the name on a numbered specimen is found to differ from the name under the same number in this list, the latter can be accepted as representing either a change required by later botanical developments, or a more mature determination by Mr. Holden. Few collectors were as careful as he to secure specimens at once in perfect condition for study, and representing at their best the form and color of the living plant; he never could refrain from collecting and mounting fine specimens of such genera as *Grinnellia*, *Dasya*, *Antithamnion*, which probably occur nowhere in the world in greater perfection and luxuriance than in Long Island Sound; the long series of numbers under each of these will show what favorites they were; but at the same time the most insignificant and unattractive appearing plants were collected and studied, time after time, until their identity was ascertained, and usually a set secured for distribution. Practically all of Mr. Holden's spare time for the thirteen years covered by this list was given to this work; but the great business enterprise of which he had charge took even more of his time than most men give to business. The dates in the note book might almost serve as a calendar of the Sundays and legal holidays for the thirteen years, with an occasional Saturday afternoon added. Mr. Holden was delightful in social relations; but an invitation to anything of a social nature

at an hour of daylight when he was free from business he would decline, with his regrets that he could not accept, as "the tide did not come just right for it that day," and he would start again for his favorite shore or stream.

In the present publication the record will not be in chronological order, but by species; the marine and fresh water forms from Connecticut localities being in separate lists. Under each species (or variety) will be given the numbers, the localities and the dates; and where specimens of the number in question were distributed in the Phycotheca Boreali-Americana, this will be indicated by the initials P. B.-A., with number. Notes made by Mr. Holden on special points of habit, structure, etc., will be given in quotation marks. After the Connecticut lists a short list will be given, representing collections made in Newfoundland, in July, 1897. Collections made during short visits to Mount Desert, Maine, Wood's Hole, Massachusetts, etc., have been already utilized in other publications. Published lists of algae are too often restricted to mere names; where a locality is given it is often only a town name; and any indication of time of occurrence is rather exceptional. The more recent European works give fuller details in these matters, as well as in regard to the environment favorable to a particular species; but in American publications little of this is to be found; a beginning, at least, can be made in this case. The month will always be given, but not the year; where there are notes as to fruit, the month for that will also be indicated, and the locality will be given with the utmost exactness possible. That so few exact localities are on record for algae seems strange, as there are no plants for which exact details are so desirable; a flowering plant in bloom is a conspicuous object, easily noted as one walks or even rides along; ferns are much the same, and even small Botrychiums can be found by getting down on one's knees; the larger fungi stand out plainly, the micro-fungi are associated with definite hosts; but with algae, especially with fresh water algae, the case is different. The stream in which they grow may be invisible to one walking a few rods away; in the pond there may be many species, sometimes mingled, sometimes in zones of depth, sometimes one at one point, another at another; often a species is persistent year after year in a very limited locality, and not elsewhere. The flowering plant or the fern is at once recognizable, or at most the question is between two or three critical species; but it is different with fresh

water algae. In the eastern states there are over 30 species of *Spirogyra*, over 50 species of *Oedogonium*; not one of these can be recognized at sight, or even by inspection with a pocket lens; it would be barely possible sometimes to distinguish the genus by the lens, and often not even this; if looking for a certain species of *Oedogonium*, recorded from a certain town, perhaps known only from that one station, one might spend days wandering about, collecting every green thing, examining each in the evening with the microscope, and finally go away without the desired plant. Details as to station that would be unnecessary with flowering plants, that would even seem grotesque to botanists generally, may be very useful. It might excite mirth to read that *Oedogonium Ravenellii* grew in South Springfield, in the pond in Smith's pasture, at the place where Jones's cattle come down to drink; and yet, without some such detail, one might spend a day in vain in looking for the rare species. Of course the cows may change their habits, as everything in this world changes; but cows and country residents generally are conservative, and changes in such matters are infrequent. As regards the larger marine algae, such full detail is not as necessary, but it is a help, and the smaller forms require it only in a less degree than the fresh water forms; nearly every species thrives best in some particular environment; shallow bay, swift current, exposed to surf, etc.; the knowledge of this is convenient to the collector. For the interest of the student who wishes to learn in regard to such preferences of environment, but who cannot visit the station, indications of the characters of the principal localities here referred to will perhaps be useful. Seaside Park, Pleasure Beach, Long Beach, and Woodmont, are sandy or pebbly shores open to Long Island Sound; often with boulders of various sizes, but at Woodmont is the only exposure of solid rock for many miles; several species not recorded elsewhere in the Sound are found here. The Gut is a narrow channel, through which the tide runs swiftly; Cook's Point is low and marshy, facing Bridgeport harbor; Stratford Shoals (or Middle Ground), Penfield Reef, and Black Rock, are points in the Sound, marked by lighthouses or beacons, and nearly or quite covered at high tide. Fresh Pond is in Stratford, and is connected with the Sound by a narrow channel, which at times is open, at times closed by gates; the water varies from slightly brackish to fully as salt as the sea; but in spite of the name, is never fresh. Yellow Mill Pond is a shallow muddy bay, the bottom bare at low tide, the outlet crossed by Yellow Mill

Bridge, under which the tide runs in and out swiftly. The fresh water stations require no comment, as the name usually gives sufficient indication.

## CONNECTICUT MARINE ALGAE.

*Polycystis elabens* (Kütz.) Farlow. 870, with *Anabaena variabilis*, on decaying algae, Fresh Pond. Aug.

*Gloeocapsa crepidinum* Thuret. 152, 596, 939. Stratford Shoals, on stonework; on wharf logs. May, Sept.

*Entophysalis granulosa* Kütz. 707, 749, 1132 = P. B.–A. 152b. On stones in Fresh Pond. Aug.–Oct.

*Pleurocapsa fuliginosa* Hauck. 766, 770, 773, 778, 897, 898, 904 = P. B.–A. 101, 905, 906, 907, 908, 939, 968. On *Enteromorpha* and stones between tides, below Yellow Mill Bridge. Nov., Dec., May, Aug.

*Xenococcus Schousboei* Thuret. 607, 622, 667, 768. On *Chantransia virgatula*, *Sphacelaria radicans*, *Rhodochorton Rothii*; Seaside Park; Black Rock; Fresh Pond. June, July, Dec.

*Hyella caespitosa* Born. & Flah. 861, 1513. In shells. June, Aug.

*Spirulina subsalsa* Oersted. 334, 626, 1133, 1320 = P. B.–A. 252. On algae and *Ruppia*, Fresh Pond. May, July, Aug. July 7, "In large expanded masses on stalks of *Ruppia*. Could take it up in jelly-like masses half an inch thick, pure *Spirulina*."

*Oscillatoria chalybea* Mert. 890, 940, 941, 948. Outlet of Fresh Pond; on woodwork, rocks, and *Enteromorpha*, below Yellow Mill Bridge. May, June, Nov.

*O. Corallinae* (Kütz.) Gomont. 711, 1039. On *Gelidium*, Woodmont; on *Enteromorpha* below Yellow Mill Bridge. Sept.

*O. formosa* Bory. 1503 = P. B.–A. 710. Floating on stagnant marsh pools, near Fresh Pond. May.

*O. laetevirens* Crouan. 1471. Forming a film on old grassy bottom, brackish marsh pool, Cook's Point. June.

*Lyngbya aestuarii* (Mert.) Liebm. 60, 168, 341, 344, 440, 1466. Cook's Point, Fresh Pond. June, July, Sept. Oct.

*L. confervoides* Ag. 152, 486, 1040, 1529. Stratford Shoals, on stone and iron work. July, Sept., Oct.

(*To be continued.*)

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